

EXHIBIT F

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1 wires as they are twisted. When the conductors of more than one wire are secured
2 in this manner, electrical current freely passes between the joined wires.

3 30. Twist connectors are multiple use connectors and can be easily
4 removed to allow wires to be separated after installation. Common twist connectors
5 are shown below.



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17 **UNITED STATES DISTRICT COURT**
18 **SOUTHERN DISTRICT OF CALIFORNIA**

19 DS ADVANCED ENTERPRISES,
20 LTD., a corporation,

21 Plaintiff,

22 v.

23 LOWE'S COMPANIES, INC., A
24 CORPORATION,

25 Defendant.

26 Case No. 3:23-cv-01335-CAB-JLB

27 **DECLARATION OF DR. ERIC**
28 **BRETSCHNEIDER**

29 I, Eric Bretschneider, do hereby declare and state as follows:

30 **BACKGROUND AND QUALIFICATIONS**

31 1. I submit this declaration in support of Lowe's Home Center's Motion
32 for Summary Judgment of No Infringement.

33 2. I have over 30 years of experience with lighting and LEDs, including a
34 comprehensive background on the full range of LED production technologies,
35 including substantial experience in product development, package design, and
36 manufacturing.

1 3. I have a Ph.D. in chemical engineering from the University of Florida,
 2 with a focus on the development of optoelectronic devices.

3 4. Since 2014, I have been the Chief Technology Officer at EB Designs &
 4 Technology. In that capacity, I am (among other things) responsible for the design
 5 of solid-state lighting technologies for clients ranging from startups to Fortune 100
 6 companies.

7 5. I previously served as a member of the University of Florida
 8 Department of Chemical Engineering Advisory Board from 1998 until 2023. I have
 9 been a Conference Chair for LED Measurement and Standards. I am also a member
 10 of a number of professional societies, including SPIE, Materials Research Society,
 11 Illuminating Engineering Society (I am a member of the Science Advisory Panel as
 12 well as a member of numerous committees, most notably the IES Test Procedures
 13 Committee where I chair the Solid-State Lighting subcommittee).

14 6. Prior to my position at EB Designs & Technology, in 2013-2014, I
 15 served as the Director of Engineering at HeathCo, LLC. In that capacity, I was
 16 responsible for advanced technology/product development related to solid state
 17 lighting, sensors, notifications, and control products.

18 7. Prior to my position as Director of Engineering at HeathCo, between
 19 2011 and 2013, I was positioned at the Elec-Tech International Co., Ltd., where I
 20 held the positions of Chief Engineer, ETi Lighting Research Institute and VP of
 21 Research and Development, ETi Solid State Lighting. In that capacity, my
 22 responsibilities included developing all technology and product roadmaps for
 23 markets in North America, China, Europe, and Japan.

24 8. Between 2008 and 2011, I was positioned at Lighting Science Group
 25 Corp., first as a product development manager, and my responsibilities included
 26 developing solid state lighting products, then as VP of Research, and my
 27 responsibilities included developing advanced LED models for product development
 28 and production control.

1 9. I have also authored and presented more than 50 times in this field, and
 2 I am a named inventor on about 45 patents, many related to LED and light fixtures.

3 10. I earned my BSE in Chemical Engineering from Tulane University in
 4 1989. I earned a Ph.D. in Chemical Engineering from the University of Florida in
 5 1997, where my graduate work focused on development of optoelectronic devices,
 6 including novel silicon based visible LEDs and sulfide based TFELD structures and
 7 zinc selenide blue LEDs.

8 11. Based on the above education and experience, I believe that I have an
 9 extensive and detailed understanding of the state of the art in LED lighting design
 10 during the relevant period, as well as a sound basis for opining how persons of skill
 11 in the art at that time of the alleged invention would understand the technical issues
 12 in this case.

13 A copy of my curriculum vitae is attached hereto as **Appendix A**.

14 **THE LOWE'S HOUSING IS COMMON PLASTIC**

15 12. I have reviewed physical samples of several LED light fixture products
 16 of LHC, specifically Utilitech SKUs #5041630, #5041631, #5041632, #5041633,
 17 and #5041634.

18 13. I was asked to determine the makeup of the housing of those fixtures.

19 14. My review showed, unequivocally, that the housings are all comprised
 20 of common thermoformable plastic materials. This is evident from any physical
 21 inspection of the products.

22 15. To further confirm these housings are plastic, I took apart the units.
 23 There are clear imprints from tool marks from the machining of the injection mold
 24 which would only show up for injection molded plastic parts.

25 16. Injection molded plastic parts will include gate marks on one or more
 26 surfaces. Gates are portions of the mold that allow molten thermoplastics to be
 27 injected into the mold cavity and are closed prior to allowing the thermoplastic to

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1 24. In summary, the small amounts of metallic elements detected by PIXE
 2 analysis are entirely consistent with a plastic housing with minor amounts of white
 3 filler materials. No person of skill in this art would ever confuse the thermoplastic
 4 housing of the LHC products with a metal housing.

5 **THE LHC JUNCTION BOX HAS ONLY A SINGLE GROUND WIRE**

6 25. The LHC junction box has a single wire, colored green and yellow.

7 26. A person of ordinary skill in the art would know that wires can be
 8 constructed using a single (thick) conductor or multiple (thin) conductors. The
 9 choice of single or multiple conductors affects the flexibility of the wire with
 10 increasing numbers of strands resulting in more flexible wire that is less susceptible
 11 to work hardening.

12 27. Plaintiff identifies a wire with a green and yellow insulator which
 13 indicates its intended purpose is to function as a ground wire – a wire for safely
 14 discharging any excess electricity or voltage to the ground. This purpose is
 15 consistent with it being connected to the interior of the junction box with a lug
 16 terminal.

17 28. A person of ordinary skill in the art would understand output wires to
 18 be wires that conduct electricity to a component, in the present example, the LED
 19 module. For this reason, a person of ordinary skill in the art understands that the
 20 ground wire is not an output wire as it does not conduct electricity to the LED
 21 module.

22 **TWIST CONNECTORS AND PUSH CONNECTORS**

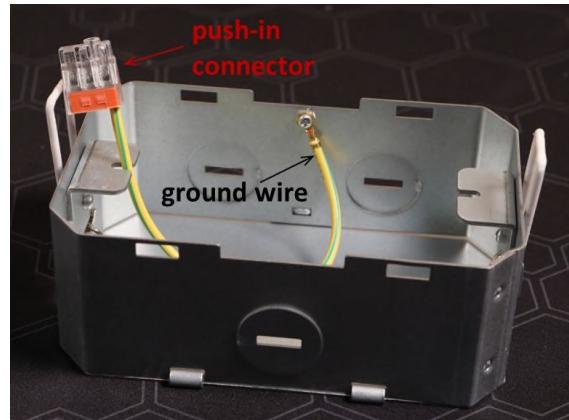
23 29. A twist connector is a very common mechanism for connecting two
 24 wires, which is “twisted” onto the stripped ends of wires. Twist connectors can also
 25 be called “wire twists,” or “wire nuts” (which also indicates the twisting action, like
 26 any nut would twist onto a bolt). These connectors are tapered and have internal
 27 conducting metal threads that cut into the surface of the conductors of one or more
 28

1 wires as they are twisted. When the conductors of more than one wire are secured
 2 in this manner, electrical current freely passes between the joined wires.

3 30. Twist connectors are multiple use connectors and can be easily
 4 removed to allow wires to be separated after installation. Common twist connectors
 5 are shown below.



11 31. Another type of wire connector is a push-in wire connector. A push-in
 12 wire connector like that shown below, uses a tapered blade mechanism to secure and
 13 make electrical contact to the exposed conductors of wires. The tapered blades of
 14 push-in connectors are designed to spread open when conductors are inserted in a
 15 manner in which they will clamp onto and secure the conductor, preventing it from
 16 being removed. As such, these types of push-in connectors are single use
 17 connectors. Once wires are installed, they cannot be removed without damaging the
 18 connector or the wires.

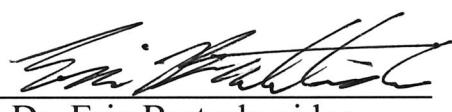


1 32. All the connectors used in the LHC products are push-in connectors,
2 not twist connectors. The connector in the Accused Products that attaches the
3 output wires of the junction box to the housing (as required by the claims) is the
4 type of connector shown and described above. It is my opinion that a person of
5 ordinary skill in the art would not confuse a push-in connector with a twist
6 connector as they are visually distinct and operate on entirely different principles.

7 33. Both twist connectors and push connectors have been available for
8 years, long before the alleged 2018 priority date of Plaintiff's patent.

9 I declare under penalty of perjury that the foregoing is true and correct.

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11 Dated: June 7, 2024



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Dr. Eric Bretschneider